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PRIMARY ARITHMETIC

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ROBINSON'S

PROGRESSIVE

PRIMARY ARITHMETIC,

FOR PRIMARY CLASSES

IN

PUBLIC AND PRIVATE SCHOOLS.

EDITED BY

DANIEL W. FISH, A.M.

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PREFACE.

THIS primary work is designed for small children, and as an easy introduction to the "Progressive Intellectual Arithmetic," for advanced classes.

Its object is to lead the young pupil, by brief and simple processes, applied to practical examples of easy gradation, to acquire habits of thought and of reasoning, in their simplest forms, and to draw out and strengthen the mind by a progressive and almost imperceptible gradation of thought and expression.

The operations of Adding and Subtracting, of Multiplying and Dividing, are first shown by pictorial objects; portions of the elementary tables are introduced at the commencement of each lesson, and applied to short examples concerning familiar objects; promiscuous reviews of the elementary tables, and the more simple and easy Denominate tables have been introduced. Fractions have been treated as far as was thought practicable in a work of this kind.

It is confidently believed that the progressive and systematic arrangement, the simplicity and adaptation to the juvenile mind, the typography and general attractiveness of this little book, will insure for it abundant success.

THE AUTHOR.

SUGGESTIONS TO TEACHERS.

1. A TEACHER should have a particular time allotted to every exercise, and regular lessons should be assigned, to be recited each day at a specified hour.

2. Sufficient time being given the pupils to learn their lessons, they should not be allowed the use of the book at the time of recitation.

3. The teacher should first ascertain that the table is *thoroughly* learned by every pupil in the class.

4. Each question should be slowly and distinctly read, and the pupils be called upon *promiscuously;* the pupil called upon should *stand* erect, repeat the question, and then give the solution. This will require close attention.

5. A correct and *uniform* analysis of each question should be required from every pupil.

6. The class should be encouraged to detect and correct errors in the statement and solution of questions, to be signified by raising the hand.

7. The teacher can extend the questions in each lesson at pleasure, either by repeating those given, or making additional ones.

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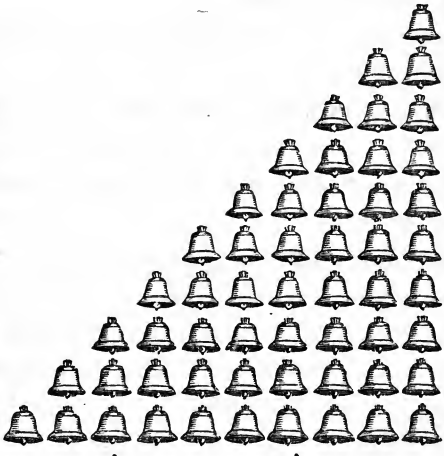
PRIMARY ARITHMETIC.

LESSON I.

1. What is the first thing to be taught and learned in Arithmetic? Ans. Counting.
2. What is counting? Ans. Expressing numbers *by words.*
3. What is a number? Ans. A unit, or a collection of units.
4. What is a unit? Ans. A single thing.
5. How may numbers be expressed? Ans. By words, letters, and figures.
6. Which is the most common method? Ans. By figures.
7. How many figures are used to express numbers? Ans. Ten.
8. Name them.

Ans. Naught, One, Two, Three, Four, Five, Six, Seven, Eight, Nine.
0, 1, 2, 3, 4, 5, 6, 7, 8, 9.



9. Count the bells on each of the above rows.

LESSON II.

1. What is *Notation?* *Ans.* *Writing* numbers.

2. What is *Numeration?* *Ans.* *Reading* numbers.

3. How many letters are used to express numbers? *Ans.* Seven.

4. What are they? *Ans.* I, V, X, L, C, D, and M.

5. What is this method called? *Ans.* The Roman method.

6. Why is it so called? *Ans.* Because it was first used by the Romans.

7. How many figures or characters are used to express numbers? *Ans.* Ten.

8. What are they? *Ans.* 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

9. What is this method called? *Ans.* The Arabic method.

10. Why is it so called? *Ans.* Because it was first used by the Arabs.

11. What may the ten figures used in expressing numbers be called? *Ans.* The Arithmetical Alphabet.

12. Can all numbers be expressed by these ten figures? *Ans.* They can, by repeating and combining them.

LESSON III.

REMARK. — This lesson presents the printed and written figures, and the Roman letters, by which numbers are commonly expressed. It should be carefully studied by children, until they can read the figures with facility when written on the black-board, or when they meet with them in books.

Numbers.	Printed Figures.	Written Figures.	Roman Letters.
Naught	0	0	
One	1	1	I
Two	2	2	II
Three	3	3	III
Four	4	4	IV
Five	5	5	V
Six	6	6	VI
Seven	7	7	VII
Eight	8	8	VIII
Nine	9	9	IX
Ten	10	10	X
Eleven	11	11	XI
Twelve	12	12	XII
Thirteen	13	13	XIII
Fourteen	14	14	XIV
Fifteen	15	15	XV
Sixteen	16	16	XVI
Seventeen	17	17	XVII
Eighteen	18	18	XVIII
Nineteen	19	19	XIX
Twenty	20	20	XX
Twenty-one	21	21	XXI

LESSON IV.

Numbers.	Printed Figures.	Written Figures.	Roman Letters.
Twenty-two	22	22	XXII
Twenty-three	23	23	XXIII
Twenty-four	24	24	XXIV
Twenty-five	25	25	XXV
Twenty-six	26	26	XXVI
Twenty-seven	27	27	XXVII
Twenty-eight	28	28	XXVIII
Twenty-nine	29	29	XXIX
Thirty	30	30	XXX
Thirty-one	31	31	XXXI
Forty	40	40	XL
Forty-one	41	41	XLI
Fifty	50	50	L
Fifty-one	51	51	LI
Sixty	60	60	LX
Sixty-one	61	61	LXI
Seventy	70	70	LXX
Seventy-one	71	71	LXXI
Eighty	80	80	LXXX
Eighty-one	81	81	LXXXI
Ninety	90	90	XC
Ninety-one	91	91	XCI
Ninety-two	92	92	XCII
One hundred	100	100	C
Two hundred	200	200	CC
Five hundred	500	500	D
One thousand	1000	1000	M

LESSON V.

REMARK. — The children should now be furnished with slates and pencils, and required to read the following numbers from the book, or when written on the black-board by the teacher, and then to copy them on their slates in straight columns.

1	11	21	31	41
2	12	22	32	42
3	13	23	33	43
4	14	24	34	44
5	15	25	35	45
6	16	26	36	46
7	17	27	37	47
8	18	28	38	48
9	19	29	39	49
10	20	30	40	50

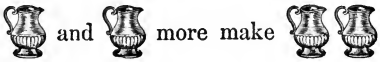
LESSON VI.

51	61	71	81	91
52	62	72	82	92
53	63	73	83	93
54	64	74	84	94
55	65	75	85	95
56	66	76	86	96
57	67	77	87	97
58	68	78	88	98
59	69	79	89	99
60	70	80	90	100

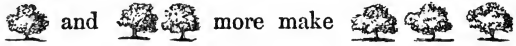
LESSON I.

Putting two or more numbers or things together into one sum, is called ADDITION: thus,

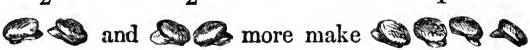
1. 1 mug and 1 mug more make 2 mugs.



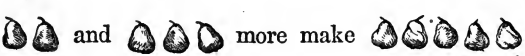
2. 1 tree and 2 trees more make 3 trees.



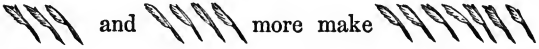
3. 2 caps and 2 caps more make 4 caps.



4. 2 pears and 3 pears more make 5 pears.



5. 3 pens and 4 pens more make 7 pens.



6. 4 soldiers and 4 soldiers more make 8 soldiers.

LESSON II.

1 and 1 are 2	1 and 6 are 7
1 and 2 are 3	1 and 7 are 8
1 and 3 are 4	1 and 8 are 9
1 and 4 are 5	1 and 9 are 10
1 and 5 are 6	1 and 10 are 11

1. If a slate pencil cost 1 cent, and an orange 3 cents, how many cents will both cost?

ANALYSIS. — *They will both cost as many cents as the sum of* 1 *cent and* 3 *cents, which is* 4 *cents. Therefore if a slate pencil cost* 1 *cent, and an orange* 3 *cents, they will both cost* 4 *cents.*

2. Sarah had 4 books, and her mother gave her 1 more; how many books did she then have?

3. In a garden are 1 plum tree and 6 pear trees; how many trees in the garden?

4. A man gave 8 dollars for a coat, and 1 dollar for a hat; how much did he give for both?

5. In a class are 5 girls and 1 boy; how many pupils in the class?

6. A boy gave 1 cent for a sponge, and 10 cents for a spelling book; what did he give for both?

7. Bought a broom for 1 shilling, and some sugar for 9 shillings; what did both cost?

LESSON III.

2 and 1 are 3	2 and 6 are 8
2 and 2 are 4	2 and 7 are 9
2 and 3 are 5	2 and 8 are 10
2 and 4 are 6	2 and 9 are 11
2 and 5 are 7	2 and 10 are 12

1. James rode 2 miles in the stage, and 4 miles in the cars; how far did he ride in both?

ANALYSIS. — *He rode as many miles as the sum of* 2 *miles and* 4 *miles, which is* 6 *miles. Therefore, since James rode* 2 *miles in the stage and* 4 *miles in the cars, he rode* 6 *miles in both.*

2. If a barrel of cider cost 2 dollars, and a barrel of flour 7 dollars, what will both cost?

3. A man had 2 sons and 5 daughters to support; how many children had he?

4. A lady gave 2 cents for some ribbon, and 10 cents for a comb; what did she pay for both?

5. A farmer sold a sheep for 2 dollars, and a hog for 9 dollars; what did he get for both?

6. John went to the river to fish, and caught 2 trout and 8 perch; how many fish did he catch?

7. If a boy spend 2 cents and have 2 left, how many cents had he at first?

LESSON IV.

3 and 1 are 4	3 and 6 are 9
3 and 2 are 5	3 and 7 are 10
3 and 3 are 6	3 and 8 are 11
3 and 4 are 7	3 and 9 are 12
3 and 5 are 8	3 and 10 are 13

1. Frank picked 3 ripe plums from one tree, and 5 from another; how many did he pick from both?

ANALYSIS. — *As many plums as the sum of* 3 *plums and* 5 *plums, which is* 8 *plums. Therefore, since Frank picked* 3 *plums from one tree, and* 5 *from another, he picked* 8 *plums both.*

2. A grocer sold 3 pounds of sugar to one man, and 4 to another; how many pounds did he sell to both?

3. Mary bought an inkstand for 7 cents, and some paper for 3 cents; how much did she pay for both?

4. A beggar received 6 cents from one little girl, and 3 from another; how many cents did he receive from both?

5. A boy found two hen's nests; in one were 8 eggs, in the other 3 eggs; how many eggs were there in both nests?

6. A knife cost 9 cents, and a top 3 cents; what did they both cost?

LESSON V.

4 and 1 are 5	4 and 6 are 10
4 and 2 are 6	4 and 7 are 11
4 and 3 are 7	4 and 8 are 12
4 and 4 are 8	4 and 9 are 13
4 and 5 are 9	4 and 10 are 14

1. Henry had 4 cents in one hand and 3 cents in the other; how many cents had he in both?

ANALYSIS. — *As many cents in both as the sum of* 4 *cents and* 3 *cents, which is* 7 *cents. Therefore, since Henry had* 4 *cents in one hand, and* 3 *cents in the other, he had* 7 *cents in both.*

2. If a skein of silk cost 4 cents, and a yard of tape 6 cents, how much do both cost?

3. A farmer has 4 black sheep, and 8 white ones; how many sheep has he of both kinds?

4. There are 5 birds on one tree, and 4 on another; how many birds are there on both trees?

5. Rollin had 4 books, and his father gave him 4 more; how many books had he then?

6. If a lady paid 7 dollars for a dress, and 4 for a bonnet, what did she pay for both?

7. There are 4 books on one shelf, and 9 on another; how many books on both shelves?

LESSON VI.

5 and 1 are 6	5 and 6 are 11
5 and 2 are 7	5 and 7 are 12
5 and 3 are 8	5 and 8 are 13
5 and 4 are 9	5 and 9 are 14
5 and 5 are 10	5 and 10 are 15

1. A miller sold 5 barrels of flour at one time, and 4 barrels at another; how many barrels did he sell in all?

2. George lost 2 cents, and had 5 cents left; how many cents had he at first?

3. Gave 5 cents for a writing book, and 3 cents for a pen holder; what was the cost of both?

4. A boy had 7 peaches in his basket, and his sister put in 5 more; how many peaches had he then?

5. Joseph rode 6 miles, and walked 5 miles; how far did he go?

6. Carrie had 5 roses, and Nellie had 8; how many roses had both?

7. A merchant sold 5 yards of calico at one time, and 5 at another; how many yards did he sell in all?

8. A farmer paid 10 dollars for a plow, and 5 dollars for a harrow; how much did he pay for both?

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LESSON VII.

6 and 1 are 7	6 and 6 are 12
6 and 2 are 8	6 and 7 are 13
6 and 3 are 9	6 and 8 are 14
6 and 4 are 10	6 and 9 are 15
6 and 5 are 11	6 and 10 are 16

1. A boy, after losing 6 marbles, had 4 left; how many had he at first?

2. Albert spent 6 cents, and had 5 left; how many had he at first?

3. A man paid 3 dollars for a barrel of cider, and 6 dollars for a barrel of flour; what did he pay for both?

4. A gardener picked 6 peaches from one tree, and 7 from another; how many peaches did he pick from both?

5. Dick caught 2 gray squirrels, and 6 red ones; how many did he catch in all?

6. A cabinet maker asks 6 dollars for a rocking chair, and 6 dollars for a table; what is the cost of both?

7. In the fruit dish are 6 red apples and 9 green ones; how many apples in the dish?

8. Edwin is 6 years old, and his sister Martha is 10 years older; what is the age of Martha?

LESSON VIII.

7 and 1 are 8	7 and 6 are 13
7 and 2 are 9	7 and 7 are 14
7 and 3 are 10	7 and 8 are 15
7 and 4 are 11	7 and 9 are 16
7 and 5 are 12	7 and 10 are 17

1. Bought a ton of hay for 7 dollars, and some oats for 6 dollars; what was the cost of both?

2. David gathered 3 quarts of walnuts, and Homer 7 quarts; how many quarts did both gather?

3. Howard had 7 rabbits, and Herbert gave him 2 more; how many had he then?

4. A farmer picked 5 bushels of apples from one tree, and 7 bushels from another; how many bushels did he gather from both?

5. Asa is 8 years old; how old will he be 7 years from this time?

6. In a basket are 7 bunches of green grapes and 7 bunches of purple ones; how many bunches of both?

7. If a boy earn 7 shillings in one week, and 9 shillings the next, how many shillings will he earn in 2 weeks?

8. In a shop, 2 men and 7 boys are employed; how many persons are employed?

LESSON IX.

8 and 1 are 9	8 and 6 are 14
8 and 2 are 10	8 and 7 are 15
8 and 3 are 11	8 and 8 are 16
8 and 4 are 12	8 and 9 are 17
8 and 5 are 13	8 and 10 are 18

1. Henry hoed 8 rows of corn one day, and 5 the next; how many rows did he hoe in both days?

2. Andrew had 8 apples and 8 peaches in his basket; how many had he of both?

3. There are 3 gentlemen and 8 ladies in a boat; how many persons in the boat?

4. A man had 8 dollars, and borrowed 6 more; how many dollars had he then?

5. Bought a pound of raisins for 9 cents, and a pound of sugar for 8 cents; what was the cost of both?

6. Emily had 7 white roses, and 8 red ones; how many roses had she of both kinds?

7. A boy sold 8 boxes of matches to one man, and 4 boxes to another; how many boxes did he sell to both?

8. There are 10 shade trees now in the park, and 8 have been cut down; how many trees were set out?

LESSON X.

9 and 1 are 10	9 and 6 are 15
9 and 2 are 11	9 and 7 are 16
9 and 3 are 12	9 and 8 are 17
9 and 4 are 13	9 and 9 are 18
9 and 5 are 14	9 and 10 are 19

1. If a firkin of butter is worth 9 dollars, and a cord of wood 6 dollars, what are both worth?

2. A lady bought a muff for 9 dollars, and a hat for 5 dollars; what did she pay for both?

3. Cora read 10 pages of history, and 9 pages of poetry; how many pages did she read in all?

4. A traveler paid 9 shillings a day for his board, and 7 shillings a day for his horse; how much did he pay for both?

5. Annie had 9 pictures, and her brother gave her 2 more; how many had she then?

6. If a peck of apples cost 9 cents, and a head of cabbage 4 cents, what will both cost?

7. In a certain class there are 9 boys and 8 girls; how many scholars are there in the class?

8. There are 9 geese and 9 ducks swimming in a pond; how many of both?

LESSON XI.

10 and 1 are 11	10 and 6 are 16
10 and 2 are 12	10 and 7 are 17
10 and 3 are 13	10 and 8 are 18
10 and 4 are 14	10 and 9 are 19
10 and 5 are 15	10 and 10 are 20

1. If a man give 10 dollars for a harness, and 4 dollars for a whip, how much does he give for both?

2. A farmer has 10 sheep in one lot, and 9 in another; how many has he in both?

3. A tailor sold a coat for 10 dollars, and a pair of pantaloons for 6 dollars; how much did he receive for both?

4. A beggar met two boys; one gave him 10 cents, and the other 7 cents; how many cents did they both give him?

5. There were 8 boys on one bench, and 10 on another; how many boys on both benches?

6. Alice had 10 cents, and her mother gave her 2 more; how many had she then?

7. Bought a pig for 3 dollars, and a calf for 10 dollars; how much did I pay for both?

8. Charles picked 10 pears from a tree, and left 10 on it; how many were on the tree at first?

LESSON XII.

PROMISCUOUS REVIEW.

2 and 5 are how many?	7 and 9 are how many?
6 and 2 are how many?	6 and 5 are how many?
2 and 4 are how many?	3 and 6 are how many?
8 and 9 are how many?	4 and 4 are how many?
9 and 4 are how many?	7 and 8 are how many?
4 and 7 are how many?	9 and 3 are how many?
8 and 6 are how many?	2 and 9 are how many?
6 and 3 are how many?	5 and 4 are how many?
7 and 2 are how many?	3 and 8 are how many?
3 and 3 are how many?	5 and 6 are how many?

3 and 9 are how many?	5 and 8 are how many?
4 and 5 are how many?	4 and 2 are how many?
9 and 8 are how many?	3 and 7 are how many?
8 and 5 are how many?	6 and 4 are how many?
4 and 9 are how many?	7 and 6 are how many?
5 and 4 are how many?	6 and 8 are how many?
2 and 7 are how many?	9 and 5 are how many?
7 and 5 are how many?	8 and 3 are how many?
2 and 3 are how many?	9 and 6 are how many?
5 and 2 are how many?	5 and 7 are how many?

6 and 9 are how many?	4 and 6 are how many?
7 and 7 are how many?	7 and 3 are how many?
3 and 4 are how many?	2 and 8 are how many?
8 and 7 are how many?	5 and 9 are how many?
4 and 8 are how many?	8 and 8 are how many?
9 and 2 are how many?	6 and 7 are how many?
5 and 3 are how many?	5 and 5 are how many?
6 and 6 are how many?	9 and 7 are how many?
3 and 5 are how many?	2 and 6 are how many?
7 and 4 are how many?	9 and 9 are how many?

LESSON XIII.

PROMISCUOUS EXAMPLES.

1. Henry paid 6 cents for an inkstand, 4 cents for some pens, and 5 cents for a writing book; how much did he pay for all?

ANALYSIS. — *He paid as many cents as the sum of* 6 *cents,* 4 *cents, and* 5 *cents;* 6 *cents and* 4 *cents are* 10 *cents, and* 5 *cents are* 15 *cents. Therefore, &c.*

2. A drover bought 4 cows of one man, 3 of another, and 7 of another; how many cows did he buy in all?

3. Elizabeth gave 10 cents for three spools of thread, 5 cents for a thimble, and 9 cents for some needles; how many cents did she give for all?

4. A lady bought a dress for 8 dollars, a shawl for 9 dollars, and a parasol for 2 dollars; how many dollars did she pay for them all?

5. If a man paid 6 dollars for a cord of wood, 5 dollars for a ton of hay, 7 dollars for some pork, and 3 dollars for some beef, how many dollars did he pay for the whole?

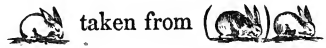
6. A boy traveled 6 miles one day, 8 miles the next day, and 10 miles the next; how many miles did he travel in three days?

7. A cabinet maker asked 12 dollars for a bureau, 10 dollars for a table, and 5 dollars for a stand; what was his price for the whole?

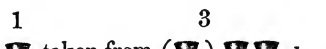
LESSON I.

Finding the difference between two numbers of the same kind, is called SUBTRACTION.

1. 1 rabbit taken from 2 rabbits, leaves 1 rabbit.



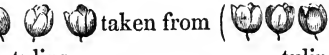
2. 1 hat taken from 3 hats, leaves 2 hats.



3. 2 eggs taken from 4 eggs, leaves 2 eggs.

3 tulips taken from 5 tulips, leaves 2 tulips.

3 glasses taken from 5 glasses, leaves how many?



3 birds taken from 4 birds, leaves how many?

LESSON II.

1 from 1 leaves 0	1 from 6 leaves 5
1 from 2 leaves 1	1 from 7 leaves 6
1 from 3 leaves 2	1 from 8 leaves 7
1 from 4 leaves 3	1 from 9 leaves 8
1 from 5 leaves 4	1 from 10 leaves 9

1. A boy, having 3 apples, gave 1 to his sister; how many had he left?

ANALYSIS. — *He had as many apples left as the difference between 3 apples and 1 apple, which is 2 apples. Therefore, since a boy had 3 apples, and gave 1 apple to his sister, he had 2 apples left.*

2. A poor woman who had 6 cents, lost 1; how many had she left?

3. A tailor had 7 yards of cloth; he cut off 1 yard; how many yards had he left?

4. Mary had 8 credit marks, and 1 demerit mark; how many more credit than demerit marks had she?

5. Robert found 5 ripe pears under a tree, and ate 1 of them; how many had he left?

6. If you make 10 marks on your slate, and rub out 1, how many remain?

7. If I pay 4 dollars for a barrel of flour, and 1 dollar for a bushel of corn, how much more do I pay for the flour than for the corn?

LESSON III.

2 from 2 leaves 0	2 from 7 leaves 5
2 from 3 leaves 1	2 from 8 leaves 6
2 from 4 leaves 2	2 from 9 leaves 7
2 from 5 leaves 3	2 from 10 leaves 8
2 from 6 leaves 4	2 from 11 leaves 9

1. Alice had 4 peaches, and gave 2 to Rollin; how many had she left?

ANALYSIS. — *She had as many peaches left as the difference between* 4 *peaches and* 2 *peaches, which is* 2 *peaches. Therefore, since Alice had* 4 *peaches, and gave* 2 *to Rollin, she had* 2 *peaches left.*

2. Lucy had 6 sheets of paper, and gave 2 to Ann; how many had she left?

3. There were 8 pigeons on a tree, and 2 flew away; how many were there left?

4. Frank had 2 apples when he started for school; he gave 2 away; how many had he left?

5. Ella had 5 roses, and gave 2 to her teacher; how many had she left?

6. Clinton had 7 chickens, and a cat caught 2 of them; how many had he left?

7. A tinner had 3 milk pails, and sold 2 of them; how many had he left?

8. Willie had 9 cents, and gave 2 cents to a blind man; how many had he left?

LESSON IV.

3 from 3 leaves 0	3 from 8 leaves 5
3 from 4 leaves 1	3 from 9 leaves 6
3 from 5 leaves 2	3 from 10 leaves 7
3 from 6 leaves 3	3 from 11 leaves 8
3 from 7 leaves 4	3 from 12 leaves 9

1. Mr. Jones sold some hay for 7 dollars, and received 3 dollars; how much more was due?

ANALYSIS. — *As much more was due as the difference between 7 dollars and 3 dollars, which is 4 dollars. Therefore, since Mr. Jones sold some hay for 7 dollars, and received 3 dollars, there were four dollars more due.*

2. Samuel found 5 eggs, and broke 3 of them; how many had he left?

3. Marcus borrowed 10 cents, and paid 3; how much did he then owe?

4. A merchant bought 9 barrels of flour, and sold all but 3 barrels; how many did he sell?

5. A man had 12 sheep in a pasture, and 3 of them jumped out; how many remained?

6. Daniel had 3 apples, and gave each of his three sisters one apiece; how many had he left?

7. A farmer had 6 horses, and sold all but 3; how many did he sell?

LESSON V.

4 from 4 leaves 0	4 from 9 leaves 5
4 from 5 leaves 1	4 from 10 leaves 6
4 from 6 leaves 2	4 from 11 leaves 7
4 from 7 leaves 3	4 from 12 leaves 8
4 from 8 leaves 4	4 from 13 leaves 9

1. A farmer, having 8 pigs, sold 4 of them; how many had he left?

ANALYSIS. — *He had as many pigs left as the difference between* 8 *pigs and* 4 *pigs, which is* 4 *pigs. Therefore, since a farmer had* 8 *pigs, and sold* 4 *of them, he had* 4 *pigs left.*

2. A boy caught 10 fishes, and threw 4 of them back into the creek; how many had he left?

3. Bought a saddle for 13 dollars, and a bridle for 4 dollars; how much more did I pay for the saddle than for the bridle?

4. There were 9 passengers in the stage, 4 of whom got out; how many remained in the stage?

5. Laura found 11 roses on her bush; and picked 4; how many remained on the bush?

6. A man paid 6 shillings for his dinner, and 4 shillings for his breakfast; how much more did he pay for his dinner than for his breakfast?

LESSON VI.

5 from 5 leaves 0	5 from 10 leaves 5
5 from 6 leaves 1	5 from 11 leaves 6
5 from 7 leaves 2	5 from 12 leaves 7
5 from 8 leaves 3	5 from 13 leaves 8
5 from 9 leaves 4	5 from 14 leaves 9

1. A man earned 7 dollars in a week, and spent 5 dollars of it; how many did he save?

2. If 10 gallons of water run into a cistern in a minute, and 5 gallons run out, how many remain?

3. A peddler had 8 penknives, and sold 5 of them; how many had he left?

4. Alfred fired into a flock of 12 wild pigeons, and killed 5 of them; how many flew away?

5. A woman bought 14 yards of calico, and used 5 yards; how many yards had she left?

6. Carlos, having 11 cents, gave 5 of them for an orange; how many had he left?

7. Stephen caught 13 fish, and gave 5 of them to a poor woman; how many had he left?

8. On a rose bush are 6 white roses, and Eliza picks 5 of them for the flower vase; how many are left on the bush?

LESSON VII.

6 from 6 leaves 0	6 from 11 leaves 5
6 from 7 leaves 1	6 from 12 leaves 6
6 from 8 leaves 2	6 from 13 leaves 7
6 from 9 leaves 3	6 from 14 leaves 8
6 from 10 leaves 4	6 from 15 leaves 9

1. A boy gave 14 cents for a knife, and sold it for 6 cents; how much did he lose?

2. In a spelling class are 7 girls and 6 boys; how many more girls than boys in the class?

3. A merchant bought 9 barrels of salt, and after selling some, he found he had 6 barrels left; how many barrels did he sell?

4. If I owe 15 dollars, and pay 6 dollars, how much do I still owe?

5. Stephen had 13 marbles, and lost 6 of them; how many had he left?

6. There are 12 sheep in a yard, and a dog bites all but 6 of them; how many does he bite?

7. Arthur rode 11 miles in the cars, and 6 in the stage; how many more miles did he ride in the cars than in the stage?

8. Carrie has 6 roses, and gives 6 to her teacher; how many has she left?

LESSON VIII.

7 from 7 leaves 0	7 from 12 leaves 5
7 from 8 leaves 1	7 from 13 leaves 6
7 from 9 leaves 2	7 from 14 leaves 7
7 from 10 leaves 3	7 from 15 leaves 8
7 from 11 leaves 4	7 from 16 leaves 9

1. Edgar had 12 chickens, and a cat killed 7 of them; how many chickens had he left?

2. Julius had 7 cents, and his father gave him enough more to make 15; how many cents did his father give him?

3. A young lady went shopping with 16 dollars; when she returned she had only 7 dollars; how much money did she spend?

4. During 13 days, it rained 7 days; how many fair days were there?

5. In a class of 11 scholars, 7 recited perfect lessons; how many had imperfect lessons?

6. In a yard there were 9 shade trees, and the wind blew down 7; how many were left standing?

7. A man bought a calf for 7 dollars, and sold it for 10 dollars; how much did he gain?

LESSON IX.

8 from 8 leaves 0	8 from 13 leaves 5
8 from 9 leaves 1	8 from 14 leaves 6
8 from 10 leaves 2	8 from 15 leaves 7
8 from 11 leaves 3	8 from 16 leaves 8
8 from 12 leaves 4	8 from 17 leaves 9

1. A farmer, having 15 sheep, sold 8 of them; how many had he left?

2. Thornton had 9 merit marks, and 8 demerit marks; how many more merit than demerit marks had he?

3. Peter carried 10 quarts of berries to market, and sold 8 quarts; how many quarts had he left?

4. A man sold a cow for 17 dollars, and took a plow worth 8 dollars, and the balance in money; how much money did he receive?

5. There were 14 yards in a piece of merino, and a lady bought 8 yards for a dress; how many yards were left?

6. In a row of 12 shade trees, 8 of them die; how many are left?

7. Calvin, having 16 cents, paid 8 cents for a slate; how many had he left?

8. Emma is 11 years old, and Willie 8; what is the difference in their ages?

LESSON X.

9 from 9 leaves 0	9 from 14 leaves 5
9 from 10 leaves 1	9 from 15 leaves 6
9 from 11 leaves 2	9 from 16 leaves 7
9 from 12 leaves 3	9 from 17 leaves 8
9 from 13 leaves 4	9 from 18 leaves 9

1. James sold his colt for 16 dollars, and received in payment 9 dollars' worth of goods, and the rest in money; how much money did he receive?

2. Clorinda had 10 cents, and gave 9 cents for a new slate; how many cents had she left?

3. A painter bought 11 gallons of oil, and after using 9 gallons, sold the remainder; how much did he sell?

4. A grocer bought a quantity of butter for 12 dollars, and it being damaged, he was obliged to sell it for 9 dollars; how much did he lose by the bargain?

5. Austin, having 15 steel pens, gave away all but 9 of them; how many did he give away?

6. A man borrowed 14 dollars, and paid 9 of it; how much did he still owe?

7. A farmer had 9 sheep, and bought enough to make 18; how many did he buy?

LESSON XI.

10 from 10 leaves 0	10 from 15 leaves 5
10 from 11 leaves 1	10 from 16 leaves 6
10 from 12 leaves 2	10 from 17 leaves 7
10 from 13 leaves 3	10 from 18 leaves 8
10 from 14 leaves 4	10 from 19 leaves 9

1. Ralph earned 17 cents and received 10 cents; how much is still due him?

2. In a certain school are 18 girls and 10 boys; how many more girls than boys are there?

3. A grocer had 12 boxes of lemons, and sold 10 boxes; how many boxes had he left?

4. In a school there are 10 boys and 16 girls; how many more girls than boys?

5. Ella had 14 roses, and gave away 10 of them; how many had she left?

6. A man bought a keg of molasses containing 15 gallons; having used a part of it, he found there were 10 gallons left; how many gallons did he use?

7. Edgar had 19 cents, and spent 10 of them; how many cents had he left?

8. A farmer had 13 acres of wheat, and 10 acres of corn; how many acres more of wheat had he than of corn?

LESSON XII.

PROMISCUOUS REVIEW.

5 from 14 how many?
2 from 8 how many?
5 from 9 how many?
9 from 10 how many?
6 from 7 how many?
7 from 12 how many?
9 from 12 how many?
4 from 8 how many?
5 from 10 how many?
6 from 11 how many?

6 from 14 how many?
4 from 7 how many?
8 from 15 how many?
5 from 11 how many?
7 from 10 how many?
3 from 8 how many?
3 from 13 how many?
9 from 11 how many?
6 from 12 how many?
8 from 10 how many?

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8 from 9 how many?
7 from 16 how many?
6 from 9 how many?
2 from 11 how many?
3 from 7 how many?
5 from 8 how many?
9 from 14 how many?
9 from 13 how many?
7 from 9 how many?
2 from 10 how many?

4 from 11 how many?
3 from 10 how many?
5 from 12 how many?
7 from 13 how many?
8 from 12 how many?
9 from 16 how many?
7 from 8 how many?
6 from 13 how many?
5 from 7 how many?
4 from 12 how many?

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3 from 9 how many?
7 from 15 how many?
8 from 17 how many?
4 from 10 how many?
2 from 9 how many?
7 from 14 how many?
3 from 11 how many?
5 from 13 how many?
9 from 17 how many?
8 from 14 how many?

8 from 16 how many?
9 from 15 how many?
7 from 11 how many?
4 from 9 how many?
3 from 12 how many?
6 from 15 how many?
9 from 18 how many?
8 from 11 how many?
6 from 10 how many?
4 from 13 how many?

LESSON XIII.

PROMISCUOUS EXAMPLES.

1. Oscar had 16 cents; he gave 6 cents to a beggar, and 5 cents for an orange; how many had he left?

ANALYSIS. — *He had left the difference between* 16 *cents, and the sum of* 6 *cents and* 5 *cents;* 6 *cents and* 5 *cents are* 11 *cents, and* 11 *cents from* 16 *cents leaves* 5 *cents. Therefore, &c.*

2. A farmer, having 18 sheep, sold 7 at one time, and 4 at another; how many had he left?

3. A grocer bought 10 dozen of eggs of one man and 9 dozen of another; he then sold 6 dozen to one of his neighbors, and kept the rest for his own use; how many did he keep?

4. A farmer bought a cow for 15 dollars; he paid one 10 dollar bill, and one 3 dollar bill; how much did he still owe?

5. A boy, having 17 chickens, sold 5 of them at one time, 7 at another, and 2 at another; how many had he left?

6. Sold some pork for 12 dollars, and received some sugar worth 3 dollars, a hat worth 2 dollars, some cloth worth 4 dollars, and the rest in money; how much money did I receive?

LESSON I.

MULTIPLICATION is taking one number as many times as there are units in another: thus,

1. If 2 boys have 2 apples apiece, how many apples will both have?

Two times two are how many?

2. If there are 3 combs in one box, how many combs would there be in 2 boxes?

Two times three are how many?

3. If 3 men have 2 dogs each, how many dogs will they all have?

Three times two are how many?

4. If 1 man can make 2 boots in three days, how many boots can 4 men make?

Two times four are how many?

5. If there are 3 owls in each of 3 cages, how many owls in all?

Three times three are how many?

LESSON II.

once 1 is 1	once 6 is 6
once 2 is 2	once 7 is 7
once 3 is 3	once 8 is 8
once 4 is 4	once 9 is 9
once 5 is 5	once 10 is 10

1. At 1 cent each, what will 2 eggs cost?

ANALYSIS. — *Since* 1 *egg cost* 1 *cent*, 2 *eggs*, *which are* 2 *times* 1 *egg*, *will cost* 2 *times* 1 *cent*, *which are* 2 *cents*. *Therefore*, *at* 1 *cent each*, 2 *eggs will cost* 2 *cents*.

2. If a man earn 1 dollar a day, how much can he earn in 4 days?

3. If Rollin reads 1 hour each evening, how many hours will he read in 6 evenings?

4. What will 5 bushels of wheat cost, at 1 dollar a bushel?

5. At 1 cent each, what will 9 steel pens cost?

6. If a family eat 1 bushel of corn in a week, how many bushels would they eat in 10 weeks?

7. If Thomas gets 1 credit mark a day, how many credit marks will he get in 7 days?

8. If Henry write 1 page a day, how many pages will he write in 8 days?

LESSON III.

2 times 1 are 2	2 times 6 are 12
2 times 2 are 4	2 times 7 are 14
2 times 3 are 6	2 times 8 are 16
2 times 4 are 8	2 times 9 are 18
2 times 5 are 10	2 times 10 are 20

1. What will 2 pounds of rice cost, at 6 cents a pound?

ANALYSIS. — *Since* 1 *pound costs* 6 *cents*, 2 *pounds, which are* 2 *times* 1 *pound, will cost* 2 *times* 6 *cents, which are* 12 *cents. Therefore* 2 *pounds of rice will cost* 12 *cents, at* 6 *cents a pound.*

2. Sarah gave 2 girls 3 apples apiece; how many did she give them both?

3. If on one rose bush there are 4 roses, how many on 2 bushes?

4. Almira bought 2 yards of ribbon at 5 cents a yard; how much did she pay for the whole?

5. At 7 cents a pound, what will 2 pounds of sugar cost?

6. What will 2 tons of hay cost, at 9 dollars a ton?

7. At 5 shillings a bushel, what will be the cost of 2 bushels of corn?

8. At 2 cents apiece, what will 2 pears cost?

LESSON IV.

3 times 1 are 3	3 times 6 are 18
3 times 2 are 6	3 times 7 are 21
3 times 3 are 9	3 times 8 are 24
3 times 4 are 12	3 times 9 are 27
3 times 5 are 15	3 times 10 are 30

1. If a man earn 9 dollars in one week, how many dollars will he earn in 3 weeks?

ANALYSIS. — *If a man earn* 9 *dollars in* 1 *week, in* 3 *weeks, which are* 3 *times* 1 *week, he will earn* 3 *times* 9 *dollars, which are* 27 *dollars. Therefore, if a man earn* 9 *dollars in* 1 *week, he will earn* 27 *dollars in* 3 *weeks.*

2. If a farmer give 4 bushels of corn for one yard of cloth, how many bushels must he give for 3 yards?

3. At 8 shillings a yard, what will 3 yards of silk cost?

4. In one cent are 10 mills; how many mills in 3 cents?

5. When sugar is worth 7 cents a pound, what will 3 pounds cost?

6. A drover paid 3 dollars a head for sheep; how much did he pay for 3 sheep?

7. Egbert gave three of his classmates 5 apples apiece; how many apples did he give them all?

LESSON V.

4 times 1 are 4	4 times 6 are 24
4 times 2 are 8	4 times 7 are 28
4 times 3 are 12	4 times 8 are 32
4 times 4 are 16	4 times 9 are 36
4 times 5 are 20	4 times 10 are 40

1. What will 4 yards of ribbon cost, at 4 cents a yard?

ANALYSIS. — *Since* 1 *yard of ribbon costs* 4 *cents*, 4 *yards, which are* 4 *times* 1 *yard, will cost* 4 *times* 4 *cents, which are* 16 *cents. Therefore,* 4 *yards of ribbon, at* 4 *cents a yard, will cost* 16 *cents.*

2. If a horse eat 8 quarts of oats a day, how many quarts will he eat in 4 days?

3. At 9 shillings a day, what will 4 days' work come to?

4. If one bench will seat 6 pupils, how many pupils will 4 benches seat?

5. Martha's dress contains 7 yards of muslin, at 4 shillings a yard; what was the cost of the dress?

6. If Joseph walk 3 miles in an hour, how far will he walk in 4 hours?

7. A butcher bought 4 calves at 5 dollars apiece; what did they cost?

8. At 2 shillings a quart, what will 4 quarts of molasses cost?

LESSON VI.

5 times 1 are 5	5 times 6 are 30
5 times 2 are 10	5 times 7 are 35
5 times 3 are 15	5 times 8 are 40
5 times 4 are 20	5 times 9 are 45
5 times 5 are 25	5 times 10 are 50

1. There are 7 days in 1 week; how many days in 5 weeks?

2. How far will a boat sail in 5 hours, at at the rate of 9 miles an hour?

3. What will 5 barrels of flour cost, at 5 dollars a barrel?

4. How many yards are there in 5 pieces of cloth, if there are 10 yards in each piece?

5. If an orange is worth 4 apples, how many apples are 5 oranges worth?

6. If a pupil work 6 problems a day, how many problems will he work in 5 days?

7. Carlos gave 5 beggars 5 cents apiece; how many cents did he give them all?

8. If a horse travel 8 miles an hour, how far can he travel in 5 hours?

9. Which is greater, 5 times 8, or 4 times 10?

10. Which is greater, 4 times 6, or 3 times 8? 5 times 6, or 3 times 10? 5 times 8, or 4 times 9?

LESSON VII.

6 times 1 are 6	6 times 6 are 36
6 times 2 are 12	6 times 7 are 42
6 times 3 are 18	6 times 8 are 48
6 times 4 are 24	6 times 9 are 54
6 times 5 are 30	6 times 10 are 60

1. A farmer bought a plow for 5 dollars; what would 6 plows cost at the same rate?

2. At 2 dollars a day, how many dollars would a man earn in 6 days?

3. What cost 6 tons of hay, at 7 dollars a ton?

4. George bought 6 lemons at 4 cents apiece; what did they all cost?

5. There are 8 quarts in 1 peck; how many quarts in 6 pecks?

6. What will 6 pounds of honey cost, at 10 cents a pound?

7. What will 6 pounds of ginger cost at 6 cents a pound?

8. In a garden are 6 apple trees, and 4 bushels of apples on each tree; how many bushels on all the trees?

9. Which is greater, 6 times 1, or 0 times 6?

10. Which is greater, 6 times 5, or 3 times 10?

LESSON VIII.

7 times 1 are 7	7 times 6 are 42
7 times 2 are 14	7 times 7 are 49
7 times 3 are 21	7 times 8 are 56
7 times 4 are 28	7 times 9 are 63
7 times 5 are 35	7 times 10 are 70

1. If a mill grind 5 bushels of wheat an hour, how many bushels will it grind in 7 hours?

2. When wheat is worth 2 dollars a bushel, what will 7 bushels cost?

3. In New England, 6 shillings make a dollar; how many shillings in 7 dollars?

4. If you write 8 lines in a day, how many lines will you write in 7 days?

5. At 10 dollars a month, how many dollars will a man earn in 7 months?

6. What will be the cost of 7 barrels of flour, at 7 dollars a barrel?

7. What are 7 quarts of cherries worth, at 4 cents a quart?

8. At 9 shillings a bushel, what will 7 bushels of peaches cost?

9. If there are 3 sheets of paper in one writing book, how many sheets in 7 books?

10. Which is greater, 7 times 6, or 6 times 7?

LESSON IX.

8 times 1 are 8	8 times 6 are 48
8 times 2 are 16	8 times 7 are 56
8 times 3 are 24	8 times 8 are 64
8 times 4 are 32	8 times 9 are 72
8 times 5 are 40	8 times 10 are 80

1. If a ton of hay cost 7 dollars, what will 8 tons cost?

2. In New York, 8 shillings make a dollar; how many shillings in 5 dollars?

3. When coffee is worth 10 cents a pound, what will be the cost of 8 pounds?

4. At 4 cents a pound, what will 8 pounds of rice cost?

5. What will 8 hats cost, at 3 dollars apiece?

6. In one square yard are 9 square feet; how many square feet in 8 square yards?

7. What will 8 bushels of potatoes cost, at 6 dimes a bushel?

8. At 6 dollars a barrel, what will 8 barrels of flour cost?

9. What is the difference between 8 times 7, and 7 times 8?

10. At 8 cents a pound, what will 8 pounds of soda cost?

11. What cost 2 slates, at 8 cents apiece?

LESSON X.

9 times 1 are 9	9 times 6 are 54
9 times 2 are 18	9 times 7 are 63
9 times 3 are 27	9 times 8 are 72
9 times 4 are 36	9 times 9 are 81
9 times 5 are 45	9 times 10 are 90

1. If a man travel by stage 5 miles an hour, how far will he travel in 9 hours?

2. What cost 9 lambs, at 6 shillings a head?

3. What will 9 pounds of sugar cost, at 9 cents a pound?

4. If Maria write 4 lines a day, how many lines will she write in 9 days?

5. There are 10 dollars in one eagle; how many dollars in 4 eagles?

6. At 3 cents a skein, what will be the cost of 9 skeins of silk?

7. If a man consume 8 pounds of meat in a week, how much will he consume in 9 weeks?

8. If it take 7 yards of calico to make one dress, how many yards will it take to make 9 dresses?

9. What cost 9 hats at 3 dollars apiece?

10. What cost 9 pounds of nails, at 6 cents a pound?

LESSON XI.

10 times 1 are 10	10 times 6 are 60
10 times 2 are 20	10 times 7 are 70
10 times 3 are 30	10 times 8 are 80
10 times 4 are 40	10 times 9 are 90
10 times 5 are 50	10 times 10 are 100

1. If a barrel of apples is worth 9 shillings, what are 10 barrels worth?

2. At 5 dollars a yard, what are 10 yards of broadcloth worth?

3. What will be the cost of 10 cords of wood, at 3 dollars a cord?

4. What will be the cost of 10 yards of calico, at 10 cents a yard?

5. If a man earn 8 shillings a day, how much will he earn in 10 days?

6. If Margaret earn 7 shillings a week, how much will she earn in 10 weeks?

7. In an orchard are 10 rows of trees, and 6 trees in each row; how many trees in the orchard?

8. Ellen paid 4 shillings a yard for 10 yards of delaine; what did the whole cost?

9. What cost 10 bushels of potatoes, at 2 shillings a bushel?

10. What cost 10 pounds of sugar at 10 cents a pound?

LESSON XII.

PROMISCUOUS REVIEW.

2 times 8 are how many?	2 times 9 are how many?
3 times 9 are how many?	8 times 2 are how many?
4 times 8 are how many?	6 times 5 are how many?
7 times 5 are how many?	4 times 7 are how many?
9 times 4 are how many?	9 times 3 are how many?
6 times 3 are how many?	5 times 7 are how many?
4 times 9 are how many?	5 times 8 are how many?
3 times 4 are how many?	9 times 5 are how many?
5 times 9 are how many?	6 times 4 are how many?
7 times 6 are how many?	8 times 3 are how many?

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3 times 7 are how many?	5 times 2 are how many?
8 times 9 are how many?	7 times 7 are how many?
6 times 8 are how many?	4 times 2 are how many?
5 times 6 are how many?	9 times 9 are how many?
7 times 3 are how many?	4 times 3 are how many?
6 times 6 are how many?	6 times 9 are how many?
9 times 7 are how many?	2 times 6 are how many?
3 times 8 are how many?	8 times 5 are how many?
4 times 6 are how many?	4 times 4 are how many?
7 times 4 are how many?	9 times 8 are how many?

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8 times 7 are how many?	7 times 0 are how many?
5 times 4 are how many?	2 times 4 are how many?
3 times 5 are how many?	5 times 9 are how many?
3 times 4 are how many?	9 times 8 are how many?
2 times 5 are how many?	3 times 3 are how many?
8 times 6 are how many?	2 times 3 are how many?
7 times 8 are how many?	7 times 4 are how many?
5 times 3 are how many?	0 times 8 are how many?
3 times 6 are how many?	3 times 6 are how many?
8 times 8 are how many?	6 times 10 are how many?

LESSON XIII.

PROMISCUOUS EXAMPLES.

1. If one ream of paper cost 5 dollars, what will 9 reams cost?

ANALYSIS. — *If 1 ream of paper cost 5 dollars, 9 reams, which are 9 times 1 ream, will cost 9 times 5 dollars, which are 45 dollars. Therefore, &c.*

2. At 4 dollars apiece, what is the value of 3 satin vests? of 6? of 8? of 7?

3. A man bought 5 brooms, at 2 shillings apiece, and 2 gallons of molasses at 4 shillings a gallon; what was the cost of the whole?

4. At 9 dollars a month, how much will a man earn in 4 months? in 6 months? in 7 months? in 9 months?

5. Bought 5 cords of wood at 3 dollars a cord, and 2 tons of hay at 7 dollars a ton; which cost the most, and how much?

6. How much is 6 times 9 less 4? 8 times 7 less 6? 4 times 7 less 8? 7 times 7 less 9?

7. Which is less, 6 times 8, or 5 times 9? 4 times 10, or 5 times 8? 3 times 9, or 5 times 6?

8. Peter sold his knife for 30 cents, and received in payment 3 quarts of chestnuts at 8 cents a quart, and the remainder in money; how much money did he receive?

LESSON I.

DIVISION is finding how many times one number or quantity is contained in another: thus,

1. How many churches will three bells supply, if each church has one bell?

One is contained in three how many times?

2. If one man can make 2 axes in one day, how many days will it take him to make 4 axes?

Two is contained in four how many times?

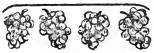
3. A lady gave 6 dolls to some children, giving them 2 apiece; to how many children did she give the dolls?

Two is contained in six how many times?

4. If a chair-maker can make 3 chairs in a day, how many days will it take him to make 9 chairs?

Three is contained in nine how many times?

5. James gave 8 bunches of grapes to his sisters, giving them 4 bunches each; how many sisters had he?



Four is contained in eight how many times?

LESSON II.

1 in 1, 1 time	1 in 6, 6 times
1 in 2, 2 times	1 in 7, 7 times
1 in 3, 3 times	1 in 8, 8 times
1 in 4, 4 times	1 in 9, 9 times
1 in 5, 5 times	1 in 10, 10 times

2 in 2, 1 time	2 in 12, 6 times
2 in 4, 2 times	2 in 14, 7 times
2 in 6, 3 times	2 in 16, 8 times
2 in 8, 4 times	2 in 18, 9 times
2 in 10, 5 times	2 in 20, 10 times

1. At 2 cents apiece, how many peaches can be bought for 6 cents?

ANALYSIS. — *Since* 2 *cents will buy* 1 *peach*, 6 *cents will buy as many peaches as* 2 *cents, the price of* 1 *peach, is contained times in* 6 *cents. which are* 3 *times. Therefore, at* 2 *cents apiece,* 3 *peaches can be bought for* 6 *cents.*

2. At 2 cents apiece, how many oranges can you buy for 8 cents? for 16 cents?

3. If a man walk 2 miles an hour, how long will it take him to walk 14 miles?

4. At 2 shillings a bushel, how many bushels of apples can be bought for 18 shillings?

5. At 1 dollar a yard, how many yards of cloth can be bought for 9 dollars?

LESSON III.

3 in 3, 1 time	3 in 18, 6 times
3 in 6, 2 times	3 in 21, 7 times
3 in 9, 3 times	3 in 24, 8 times
3 in 12, 4 times	3 in 27, 9 times
3 in 15, 5 times	3 in 30, 10 times

1. At 3 dollars a cord, how many cords of wood can be bought for 12 dollars?

ANALYSIS. — *Since* 3 *dollars will buy* 1 *cord,* 12 *dollars will buy as many cords as* 3 *dollars, the price of* 1 *cord, is contained times in* 12 *dollars, which are* 4 *times. Therefore, at* 3 *dollars a cord,* 4 *cords of wood can be bought for* 12 *dollars.*

2. For 21 cents, how many yards of ribbon can you buy, at 3 cents a yard?

3. If the cars run a mile in 3 minutes, how many miles will they run in 30 minutes?

4. A father divided 24 marbles among his 3 boys; how many did he give to each?

5. How many lemons, at 3 cents apiece, can be bought for 18 cents?

6. At 3 cents a quart, how many quarts of milk can be bought for 27 cents?

7. Harriet paid 3 cents a spool for some thread; how many spools could she buy for 15 cents?

LESSON IV.

4 in 4, 1 time	4 in 24, 6 times
4 in 8, 2 times	4 in 28, 7 times
4 in 12, 3 times	4 in 32, 8 times
4 in 16, 4 times	4 in 36, 9 times
4 in 20, 5 times	4 in 40, 10 times

1. If 4 boys can sit on one seat, how many seats will accommodate 20 boys?

2. If a class of 4 boys answer 28 questions, how many will each answer?

3. Clinton earned 40 cents in 4 days; how many cents did he earn in one day?

4. If bonnets are 4 dollars apiece, how many can be bought for 20 dollars?

5. Mary gave 36 cents for 4 yards of ribbon; how much was it a yard?

6. If 4 benches will accommodate 24 pupils, how many must sit on each bench?

7. If you put 32 sheep into 4 pens, how many must you put into each pen?

8. Helen paid 4 shillings a yard for lace; how many yards could she buy for 16 shillings?

9. At 4 dimes apiece, how many books can be bought for 24 dimes?

10. Carrie gave 12 cents for 4 skeins of silk; how much was it a skein?

LESSON V.

5 in 5, 1 time	5 in 30, 6 times
5 in 10, 2 times	5 in 35, 7 times
5 in 15, 3 times	5 in 40, 8 times
5 in 20, 4 times	5 in 45, 9 times
5 in 25, 5 times	5 in 50, 10 times

1. A man has 30 dollars, which he wishes to lay out in flour at 5 dollars a barrel; how many barrels can he buy?

2. If I pay 10 cents for riding 5 miles in the cars, how much is that a mile?

3. George wishes to divide 15 apples among 5 boys; how many must he give to each?

4. In a school of 35 pupils, there were 5 classes; how many pupils in a class?

5. How many tons of coal, at 5 dollars a ton, can a blacksmith purchase for 40 dollars?

6. How long will it take a man to drive 50 miles, with a horse and carriage, if he drive 5 miles an hour?

7. How many pounds of tea, at 5 shillings a pound, can be bought for 20 shillings?

8. Henry gave 45 cents to 5 poor children; how many cents did he give to each child?

LESSON VI.

6 in 6, 1 time	6 in 36, 6 times
6 in 12, 2 times	6 in 42, 7 times
6 in 18, 3 times	6 in 48, 8 times
6 in 24, 4 times	6 in 54, 9 times
6 in 30, 5 times	6 in 60, 10 times

1. If a man can dig 48 rods of ditch in 6 days, how many rods can he dig in one day?

2. In New England, 6 shillings make one dollar; how many dollars in 30 shillings?

3. At 6 cents a pound, how many pounds of lard can be bought for 54 cents?

4. Burton sold 6 quarts of cherries for 36 cents; how much did he get a quart?

5. If a man build 42 rods of fence in 6 days, how many rods can he build in one day?

6. How long will it take you to read 60 pages, if you read 6 pages a day?

7. If 6 bushels of rye cost 6 dollars, how much is that a bushel?

8. If a steamboat run 6 miles an hour, how long will it take her to run 24 miles?

9. When crackers are 6 cents a pound, how many pounds can be bought for 18 cents?

LESSON VII.

7 in 7, 1 time	7 in 42, 6 times
7 in 14, 2 times	7 in 49, 7 times
7 in 21, 3 times	7 in 56, 8 times
7 in 28, 4 times	7 in 63, 9 times
7 in 35, 5 times	7 in 70, 10 times

1. How many yards of cloth, at 7 shillings a yard, can be bought for 42 shillings?

2. A farmer sold 7 sheep for 14 dollars; how much did he receive apiece?

3. Seth sold his sled for 35 cents; how many slates, at 7 cents apiece, can he buy for the money?

4. If 7 yards of calico will make a dress, how many dresses can be made from a piece containing 28 yards?

5. In one week there are 7 days; how many weeks in 21 days? in 28 days? in 56 days? in 70 days?

6. Levi paid 7 cents for 7 slate pencils; how much did he pay apiece?

7. If a man can build 49 rods of stone wall in 7 days, how much can he build in 1 day?

8. When hops are 7 cents a pound, how many pounds can be bought for 70 cents?

9. How many times 7 in 63?

LESSON VIII.

8 in 8, 1 time	8 in 48, 6 times
8 in 16, 2 times	8 in 56, 7 times
8 in 24, 3 times	8 in 64, 8 times
8 in 32, 4 times	8 in 72, 9 times
8 in 80, 10 times	8 in 40, 5 times

1. Giles can buy a hoop for 8 cents; how many hoops can he buy for 40 cents?

2. A man paid 72 cents for 8 pounds of sugar; what was the price of one pound?

3. How many bins will be required to hold 56 bushels of oats, if each bin hold 8 bushels?

4. At 8 dollars a ton, how many tons of hay can be bought for 64 dollars?

5. A farmer sold 8 barrels of apples for 24 dollars; how much did he receive for one barrel?

6. If there are 8 trees in each row, how many rows are there in an orchard containing 80 trees?

7. How many spelling books, at 8 cents apiece, can you buy for 48 cents?

8. A laborer received 16 dollars for 8 days' work; how much was that a day?

9. James bought 8 lemons for 32 cents; what was the cost of one lemon?

LESSON IX.

9 in 9, 1 time	9 in 54, 6 times
9 in 18, 2 times	9 in 63, 7 times
9 in 27, 3 times	9 in 72, 8 times
9 in 36, 4 times	9 in 81, 9 times
9 in 45, 5 times	9 in 90, 10 times

1. How many classes, of 9 pupils each, can be formed of 45 pupils?

2. When eggs are 9 cents a dozen, how many dozen can be bought for 63 cents?

3. A class of 9 pupils present their teacher with a book which cost 90 cents; how many cents must each pay towards the book?

4. If you travel 9 miles an hour, how long will it take you to travel 81 miles?

5. A farmer distributed 9 bushels of potatoes equally among 9 poor families; how many did he give to each?

6. If a man spend 9 cents a day for cigars, how long will 54 cents last him?

7. For 72 shillings, how many yards of silk can a lady buy at 9 shillings a yard?

8. William sold 9 quarts of cherries for 36 cents; how much did he receive a quart?

9. How many tons of hay, at 9 dollars a ton, can be bought for 18 dollars?

LESSON X.

10 in 10, 1 time	10 in 60, 6 times
10 in 20, 2 times	10 in 70, 7 times
10 in 30, 3 times	10 in 80, 8 times
10 in 40, 4 times	10 in 90, 9 times
10 in 50, 5 times	10 in 100, 10 times

1. When butter is 10 cents a pound, how many pounds can I buy for 80 cents?

2. At 10 dollars an acre, how many acres of land can be bought for 100 dollars?

3. How long will it take a boy to earn 90 cents, if he earn 10 cents a day?

4. In one dime are 10 cents; how many dimes in 30 cents?

5. At 10 shillings apiece, how many glass lamps can be bought for 50 shillings?

6. How long will it take you to read 70 pages, if you read 10 pages a day?

7. When shawls are 10 dollars apiece, how many can be bought for 60 dollars?

8. How long will it take you to earn 40 dollars, if you earn 10 dollars a month?

9. If one man can build 10 rods of fence in one day, how many men will it take to build 20 rods in the same time?

10. At 10 cents apiece, how many melons can be bought for 40 cents?

LESSON XI.

PROMISCUOUS REVIEW.

6 in 36, how many times?	3 in 15, how many times?
7 in 42, how many times?	5 in 25, how many times?
6 in 18, how many times?	9 in 63, how many times?
9 in 81, how many times?	6 in 12, how many times?
5 in 35, how many times?	7 in 28, how many times?
8 in 72, how many times?	4 in 16, how many times?
9 in 27, how many times?	7 in 49, how many times?
4 in 20, how many times?	4 in 36, how many times?
3 in 18, how many times?	8 in 64, how many times?
6 in 54, how many times?	8 in 40, how many times?

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8 in 24, how many times?	3 in 12, how many times?
5 in 45, how many times?	4 in 28, how many times?
6 in 42, how many times?	8 in 32, how many times?
8 in 56, how many times?	6 in 48, how many times?
9 in 18, how many times?	2 in 14, how many times?
5 in 40, how many times?	9 in 45, how many times?
7 in 63, how many times?	8 in 48, how many times?
3 in 27, how many times?	7 in 56, how many times?
7 in 21, how many times?	3 in 21, how many times?
8 in 16, how many times?	6 in 54, how many times?

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8 in 8, how many times?	3 in 24, how many times?
4 in 12, how many times?	2 in 16, how many times?
7 in 35, how many times?	4 in 32, how many times?
5 in 10, how many times?	6 in 24, how many times?
7 in 14, how many times?	9 in 72, how many times?
2 in 6, how many times?	5 in 10, how many times?
4 in 24, how many times?	4 in 8, how many times?
5 in 30, how many times?	5 in 20, how many times?
9 in 36, how many times?	2 in 10, how many times?
6 in 30, how many times?	7 in 7, how many times?

LESSON XII.

PROMISCUOUS EXAMPLES.

1. When flour is 7 dollars a barrel, how many barrels can be bought for 63 dollars?

ANALYSIS. — *Since 7 dollars will buy 1 barrel, 63 dollars will buy as many barrels as 7 dollars, the price of 1 barrel, is contained times in 63 dollars, which are 9 times. Therefore, &c.*

2. If it take 81 bushels of apples to make 9 barrels of cider, how many bushels will make one barrel?

3. How long will it take 5 men to do a job of work that one man can do in 30 days?

4. How long will 12 dollars pay for my board, at the rate of 6 dollars a week?

5. If 54 pounds of provision last one man 9 days, how many pounds would last him one day?

6. Marcus read 100 pages in 10 days; how many pages did he read each day?

7. A cabinet maker received 45 dollars for some chairs at 5 dollars apiece; how many chairs did he sell?

8. If one man can mow a field of grass in 18 days, in what time would 6 men mow the same?

9. A farmer sold some hay for 30 dollars, and took 10 sheep for payment; what was the cost of each sheep?

LESSON XIII.

1. How many tons of hay, at 6 dollars a ton, will pay for 8 yards of broadcloth, at 3 dollars a yard?

ANALYSIS. — *As many tons of hay at* 6 *dollars a ton, as* 6 *dollars, the price of a ton, is contained times in* 8 *times* 3 *dollars, or* 24 *dollars, the cost of the broadcloth, which are* 4 *times. Therefore* 4 *tons of hay, at* 6 *dollars a ton, will pay for* 8 *yards of broadcloth, at* 3 *dollars a yard.*

2. How many dozen of eggs, at 9 cents a dozen, will pay for 6 yards of calico, at 6 cents a yard?

3. Charles sold 6 quarts of beech nuts, at 4 cents a quart, and took his pay in oranges, at 3 cents apiece; how many oranges did he receive?

4. At 6 dollars a barrel, how many barrels of flour will pay for 3 barrels of pork, at 10 dollars a barrel?

5. If 5 men can hoe a field of corn in 6 days, how long will it take one man?

6. If 8 men can build a shed in 10 days, how many men must be employed to build it in one day?

7. If 4 men can do a piece of work in 7 days, how long will it take one man to do it?

8. How many days' labor, at 8 shillings a day, will pay for 10 bushels of potatoes at 4 shillings a bushel?

LESSON XIV.

1. If 7 oranges cost 28 cents, what will 3 oranges cost?

ANALYSIS. — *If* 7 *oranges cost* 28 *cents*, 1 *orange will cost as many cents as* 7 *is contained times in* 28, *which is* 4 *times*; 3 *oranges, which are* 3 *times* 1 *orange, will cost* 3 *times* 4 *cents, or* 12 *cents. Therefore, if* 7 *oranges cost* 28 *cents*, 3 *oranges will cost* 12 *cents.*

2. If 6 pounds of sugar cost 60 cents, what will 9 pounds cost?

3. A farmer sells 8 sheep for 24 dollars; how much does he receive for 5 sheep?

4. If a man can earn 72 dollars in 8 weeks, how much can he earn in 10 weeks?

5. Jane bought 5 steel pens for 15 cents; what would be the cost of 10 pens at the same rate?

6. A grocer sold 10 pounds of tea for 40 shillings; what would be the cost of 8 pounds at the same rate?

7. If a man can chop 16 cords of wood in 8 days, how much can he chop in 3 days? in 5 days? in 7 days? in 10 days? in 12 days?

8. If 7 yards of calico cost 63 cents, what will 3 yards cost? 5 yards? 6 yards? 9 yards? 10 yards?

9. When 4 cords of wood are worth 20 dollars, what will 9 cords be worth?

LESSON XV.

1. Isabel had 15 pinks, and gave 6 to Clara, and 4 to Herbert; how many did she keep for herself?

ANALYSIS. — *She kept as many pinks as the difference between* 15 *pinks and the sum of* 6 *pinks and* 4 *pinks;* 6 *and* 4 *are* 10, *and* 10 *from* 15 *leaves* 5. *Therefore, if Isabel had* 15 *pinks, and gave away* 10, *she had* 5 *left.*

2. Lucian, having 20 marbles, gave 9 to Henry, and 6 to John; how many had he left?

3. From a piece of cloth containing 12 yards, 5 yards were cut for a coat, 3 yards for a pair of pantaloons, and 1 yard for a vest; how many yards were left?

4. If 2 men start from the same place and travel in opposite directions, one at the rate of 4 miles an hour, and the other at the rate of 5 miles an hour, how far apart will they be at the end of 1 hour? At the end of 2 hours? 5 hours? 6 hours? 8 hours? 10 hours?

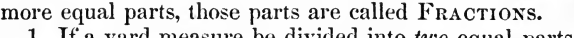
5. A grocer sold 2 pounds of rice at 6 cents a pound, a pound of soda for 8 cents, and a bar of soap for 7 cents, and was paid in eggs at 9 cents a dozen; how many dozen of eggs did he receive?

6. If a man travel 36 miles in 9 hours, how far will he travel in 5 hours? in 6 hours? in 7 hours?

LESSON I.

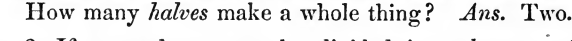
When a unit or whole thing is divided into two or more equal parts, those parts are called FRACTIONS.

1. If a yard measure be divided into *two* equal parts, one of the parts is called *one half.*



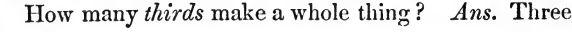
How many *halves* make a whole thing? *Ans.* Two.

2. If a yard measure be divided into *three* equal parts, one of the parts is called *one third.*



How many *thirds* make a whole thing? *Ans.* Three.

3. If a yard measure be divided into *four* equal parts, one of the parts is called *one fourth*, two of the parts *two fourths*, three of the parts *three fourths.*

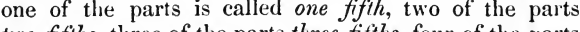


How many *fourths* make a whole thing? *Ans.* Four.

4. If a yard measure be divided into *five* equal parts, one of the parts is called *one fifth*, two of the parts *two fifths*, three of the parts *three fifths*, four of the parts *four fifths.*

How many *fifths* make a whole thing? *Ans.* Five.

5. If a yard measure be divided into *six* equal parts, one of the parts is called *one sixth*, two of the parts *two sixths*, and so on.



How many *sixths* make a whole thing? *Ans.* Six.

LESSON II.

1. If any number or whole thing be divided into *seven* equal parts, one of the parts is called *one seventh*, two of the parts *two sevenths*, and so on.

How many *sevenths* make a whole thing?
Ans. Seven sevenths.

2. If any number or thing be divided into *eight* equal parts, one of the parts is called *one eighth*, five of the parts *five eighths*, and so on.

How many *eighths* make a whole thing?
Ans. Eight eighths.

3. If any number or thing be divided into *nine* equal parts, one of the parts is called *one ninth*, seven of the parts *seven ninths*, and so on.

How many *ninths* make a whole thing?

How many *tenths* make a whole thing?

The following is the method of expressing fractions by figures: —

$\frac{1}{2}$, one half.	$\frac{1}{5}$, one fifth.	$\frac{1}{8}$, one eighth.
$\frac{1}{3}$, one third.	$\frac{1}{6}$, one sixth.	$\frac{1}{9}$, one ninth.
$\frac{1}{4}$, one fourth.	$\frac{1}{7}$, one seventh.	$\frac{1}{10}$, one tenth.

NOTE. — In any fraction, as $\frac{2}{3}$, (two thirds,) the number *below* the line is called the *Denominator*, and it shows into how many equal parts the whole number or thing is divided. The number *above* the line is called the *Numerator*, and it shows the *number* of parts that are used, or that are expressed by the fraction.

LESSON III.

1. What do you understand by $\frac{1}{2}$ of any number or thing?

Ans. One of the *two* equal parts into which the number or thing is divided.

2. What do you understand by $\frac{1}{3}$ of any number or thing?

Ans. One of the *three* equal parts into which the number or thing is divided.

3. What do you understand by $\frac{2}{3}$ of any number or thing?

Ans. Two of the *three* equal parts into which the number or thing is divided.

4. How do you find $\frac{1}{2}$ of any number?

Ans. Divide the given number by 2.

5. How do you find $\frac{1}{3}$ of any number?

Ans. Divide the given number by 3.

6. How, then, will you find $\frac{1}{4}$ of any number? how $\frac{1}{5}$? how $\frac{1}{6}$? how $\frac{1}{7}$? how $\frac{1}{8}$? how $\frac{1}{9}$? how $\frac{1}{10}$?

7. What do you understand by $\frac{1}{5}$ of any number or thing? by $\frac{2}{5}$? by $\frac{3}{5}$? by $\frac{4}{5}$? by $\frac{1}{6}$? by $\frac{3}{4}$? by $\frac{1}{7}$? by $\frac{1}{8}$? by $\frac{3}{8}$? by $\frac{5}{8}$? by $\frac{7}{8}$? by $\frac{1}{9}$? by $\frac{7}{9}$?

9. What is $\frac{1}{2}$ of 4? of 6? of 8? of 10? of 16? of 20?

10. What is $\frac{1}{4}$ of 8? of 12? of 16? of 20? of 28?

11. What is $\frac{1}{6}$ of 12? of 24? of 36?

LESSON IV.

1. In 1 orange, how many halves?
2. In 3 oranges, how many halves?

ANALYSIS. — *Since in* 1 *orange there are* 2 *halves, in* 3 *oranges there are* 3 *times* 2 *halves, which are* 6 *halves. Therefore, in* 3 *oranges there are* 6 *halves.*

3. How do you find how many *halves* there are in any number or thing?

Ans. Multiply the whole number by 2.

4. How do you find how many *thirds* there are in any number or thing?

Ans. Multiply the whole number by 3.

5. How many halves are there in 4 pears? in 4 pears and 1 half? in 5 pears?

6. In 6 bushels and 1 half, how many halves?

7. In 3 apples, how many thirds?

8. In 4 apples and 1 third, how many thirds are there? in 4 and 2 thirds? in 5? in 5 and 1 third?

9. How many halves in 7? in 7 and 1 half? in 8? in 9 and 1 half? in 10?

10. How many thirds in 5? in 5 and 1 third? in 5 and 2 thirds? in 6? in 7 and 1 third? in 7 and 2 thirds?

11. In 8 dollars, how many halves? how many thirds?

12. How many half miles, in 7 miles and 1 half?

LESSON V.

1. In 5 bushels, how many fourths?

ANALYSIS. — *Since in* 1 *bushel there are* 4 *fourths, in* 5 *bushels there are* 5 *times* 4 *fourths, which are* 20 *fourths. Therefore, in* 5 *bushels there are* 20 *fourths.*

2. How many fourths in 6? in 6 and 1 fourth? in 6 and 3 fourths? in 7 and 1 fourth? in 8 and 3 fourths? in 9?

3. How many fifths in 2? in 3? in 4 and 1 fifth? in 5 and 2 fifths? in 7 and 3 fifths?

4. How many sixths in 1? in 2? in 4? in 4 and 1 sixth? in 7 and 2 sixths? in 7 and 5 sixths?

5. In 3, how many sevenths? in 3 and 5 sevenths? in 4 and 1 seventh? in 4 and 4 sevenths?

6. In 7, how many sevenths? in 7 and 6 sevenths?

7. How many eighths in 2? in 3? in 5 and 1 eighth? in 5 and 7 eighths?

8. In 1, how many ninths? in 2? in 5? in 6? in 4 and 3 ninths? in 7 and 5 ninths? in 8?

9. How many tenths in 1? in 2? in 3? in 4 and 5 tenths? in 6 and 3 tenths? in 9 and 9 tenths?

10. In 6, how many fifths? how many sixths? how many sevenths? how many eighths? how many ninths?

LESSON VI.

1. In 6 halves of a mile, how many miles?

ANALYSIS. — *Since there are* 2 *halves in* 1 *mile, in* 6 *halves of a mile there are as many miles as* 2 *halves are contained times in* 6 *halves, which are* 3 *times. Therefore, in* 6 *halves of a mile are* 3 *miles.*

2. How many bushels in 14 halves of a bushel?

3. In 12 halves, how many units or whole ones?

4. How many units in 15 thirds? in 18 thirds? in 21 thirds?

5. How many units in 16 fourths? in 17 fourths? in 18 fourths? in 20 fourths? in 23 fourths?

6. In 7 fifths, how many whole ones? in 10 fifths? in 25 fifths? in 26 fifths? in 28 fifths?

7. How many times 1 in 18 sixths? in 19 sixths? in 24 sixths? in 30 sixths? in 32 sixths?

8. In $\frac{7}{7}$ how many times 1? in $\frac{10}{7}$? in $\frac{14}{7}$ in $\frac{16}{7}$? in $\frac{20}{7}$? in $\frac{28}{7}$? in $\frac{33}{7}$? in $\frac{35}{7}$?

9. How many times 1 in $\frac{8}{8}$? in $\frac{12}{8}$? in $\frac{13}{8}$? in $\frac{20}{8}$? in $\frac{27}{8}$? in $\frac{34}{8}$? in $\frac{32}{8}$?

10. How many units in $\frac{7}{9}$? in $\frac{10}{9}$? in $\frac{16}{9}$? in $\frac{18}{9}$? in $\frac{25}{9}$? in $\frac{27}{9}$?

11. In $\frac{15}{10}$, how many times 1? in $\frac{20}{10}$? in $\frac{23}{10}$? in $\frac{25}{10}$? in $\frac{30}{10}$? in $\frac{45}{10}$? in $\frac{96}{10}$?

LESSON VII.

1. George had $\frac{2}{6}$ of a dollar, and his father gave him $\frac{3}{6}$ of a dollar more; what part of a dollar had he then?

ANALYSIS. — *He had the sum of $\frac{2}{6}$ of a dollar and $\frac{3}{6}$ of a dollar; $\frac{2}{6}$ and $\frac{3}{6}$ make $\frac{5}{6}$ of a dollar. Therefore, since George had $\frac{2}{6}$ of a dollar, and his father gave him $\frac{3}{6}$ of a dollar more, he then had $\frac{5}{6}$ of a dollar.*

2. A lady gave $\frac{4}{7}$ of an orange to Mary, $\frac{1}{7}$ to Sarah, and $\frac{1}{7}$ to Julia; how many oranges did she give away?

3. John bought $\frac{1}{4}$ of a pound of raisins, and Joseph $\frac{3}{4}$ of a pound; how many pounds did they both buy?

4. A blacksmith bought at one time $\frac{3}{5}$ of a ton of coal, at another time $\frac{2}{5}$ of a ton, at another time $\frac{4}{5}$ of a ton, and at another time $\frac{1}{5}$ of a ton; how many tons did he buy in all?

5. Samuel paid $\frac{2}{10}$ of a dollar for a slate, $\frac{4}{10}$ of a dollar for an arithmetic, $\frac{7}{10}$ for a reader, and $\frac{9}{10}$ for a geography and atlas; how many dollars did he pay for all?

6. A man chopped $\frac{5}{8}$ of a cord of wood in the forenoon, and $\frac{7}{8}$ of a cord in the afternoon; how much did he chop in a day?

7. In the sum of $\frac{3}{7}$ and $\frac{5}{7}$ and $\frac{2}{7}$ and $\frac{1}{7}$, how many whole ones?

8. In the sum of $\frac{1}{9}$ and $\frac{4}{9}$ and $\frac{5}{9}$ and $\frac{3}{9}$, how many whole ones?

LESSON VIII.

1. A gentleman, having $\frac{7}{8}$ of an acre of land, sold $\frac{5}{8}$ of an acre; what part of an acre had he left?

ANALYSIS. — *He had left the difference between $\frac{7}{8}$ of an acre and $\frac{5}{8}$ of an acre, which is $\frac{2}{8}$ of an acre. Therefore, since a gentleman had $\frac{7}{8}$ of an acre of land, and sold $\frac{5}{8}$ of an acre, he had $\frac{2}{8}$ of an acre left.*

2. Frank spent $\frac{3}{5}$ of his money, and lost $\frac{2}{5}$ of it; what part of his money had he left?

3. Oscar bought a pair of skates for $\frac{7}{10}$ of a dollar, and sold them for $\frac{9}{10}$ of a dollar; how much did he gain by his bargain?

4. Eugene owns $\frac{5}{8}$ of a kite, and Herbert the remainder; what part of the kite does Herbert own?

5. Clara, having a quire of paper, gave $\frac{1}{6}$ of it to Emeline, and $\frac{3}{6}$ to Caroline; what part did she keep for herself?

6. If I divide an orange into 5 equal parts, and give away 3 pieces, what part of the orange will be left?

7. A barrel of flour was distributed among three poor families; the first received $\frac{3}{8}$ of a barrel, the second $\frac{4}{8}$ of a barrel, and the third the remainder; what part of a barrel did the third receive?

8. $\frac{4}{10}$ and $\frac{3}{10}$ and $\frac{7}{10}$ less $\frac{5}{10}$, are how many tenths?

LESSON IX.

1. 5 is $\frac{1}{2}$ of what number?

ANALYSIS. — 5 *is* 1 *half of* 2 *times* 5, *which are* 10. *Therefore*, 5 *is* 1 *half of* 10.

2. 3 is $\frac{1}{3}$ of what number?
3. 6 is $\frac{1}{4}$ of what number?
4. 7 is $\frac{1}{8}$ of what number?
5. 5 is $\frac{1}{6}$ of what number?
6. 9 is $\frac{1}{5}$ of what number?
7. 8 is $\frac{1}{7}$ of what number?
8. 4 is $\frac{1}{10}$ of what number?
9. 2 is $\frac{1}{9}$ of what number?
10. A man bought $\frac{1}{2}$ of a cord of wood for 2 dollars; how much will a cord cost, at the same rate?
11. If $\frac{1}{5}$ of a pound of coffee cost 4 cents, what will a pound cost?
12. A lady paid 10 cents for $\frac{1}{8}$ of a yard of silk? how much must she pay for a yard?
13. Homer gave 6 cents to a beggar, which was $\frac{1}{5}$ of all he had; how many cents had he at first?
14. A farmer received 5 dollars towards the payment for a horse, which was $\frac{1}{6}$ of what he sold him for; what was the price of the horse?
15. James sold a kite for 4 cents more than it cost him, and gained just $\frac{1}{7}$ of what he gave for it; what did it cost?

LESSON X.

1. Lester bought $\frac{1}{4}$ of a pound of raisins for 5 cents; what would $\frac{3}{4}$ of a pound cost, at the same rate?

ANALYSIS. — *Since* 1 *fourth of a pound of raisins cost* 5 *cents,* 3 *fourths of a pound, which are* 3 *times* 1 *fourth, will cost* 3 *times* 5 *cents, which are* 15 *cents. Therefore, since* $\frac{1}{4}$ *of a pound of raisins cost* 5 *cents,* $\frac{3}{4}$ *of a pound will cost* 15 *cents.*

2. If $\frac{1}{5}$ of an acre of land cost 6 dollars, what will $\frac{3}{5}$ of an acre cost, at the same rate?

3. There are 5 yards in $\frac{1}{8}$ of a piece of cloth; how many yards in $\frac{3}{8}$ of the piece? in $\frac{5}{8}$ of the piece? in the whole piece?

4. If $\frac{1}{5}$ of a barrel of flour cost 2 dollars, what will $\frac{2}{5}$ of a barrel cost? what will $\frac{4}{5}$ cost? what will the whole barrel cost?

5. If $\frac{1}{7}$ of a bushel of walnuts cost 3 shillings, what will $\frac{4}{7}$ of a bushel cost? what will a bushel cost?

6. Paid 2 dollars for $\frac{1}{3}$ of a ton of hay; what would be the cost of a ton, at the same rate?

7. A man spent 9 dollars in $\frac{1}{4}$ of a month; how much would he spend in $\frac{3}{4}$ of a month, at the same rate? how much in a month?

8. In $\frac{1}{10}$ of a dollar are 10 cents; how many cents in $\frac{4}{10}$ of a dollar? in $\frac{7}{10}$? in $\frac{9}{10}$? in a whole dollar?

LESSON XI.

TABLES OF MONEY, WEIGHTS, MEASURES, ETC.

UNITED STATES MONEY.

The **Denominations** are, the Eagle, Dollar Dime, Cent, and Mill.

10 mills (m.)	make 1 cent,	marked	ct.
10 cents	" 1 dime,	"	d.
10 dimes, or 100 cts.	" 1 dollar,	"	dol. or $.
10 dollars	" 1 eagle,	"	E.

United States or Federal money is the legal currency of the United States.

NOTE.—The mill is not a coin; it is used only in computations.

CANADA MONEY.

The table and denominations are the same as those of the United States money.

NOTE 1. The decimal currency was adopted by the Canadian Parliament in 1858, and the Act took effect in 1859.

2. Previous to the year 1859, the money of Canada was reckoned in pounds, shillings, and pence, the same as in England.

PARTS OF ONE DOLLAR.

5 cents = $\frac{1}{20}$ of a doll.		25 cents = $\frac{1}{4}$ of a doll.	
$6\frac{1}{4}$ cents = $\frac{1}{16}$ of a doll.		$33\frac{1}{3}$ cents = $\frac{1}{3}$ of a doll.	
$8\frac{1}{3}$ cents = $\frac{1}{12}$ of a doll.		$37\frac{1}{2}$ cents = $\frac{3}{8}$ of a doll.	
10 cents = $\frac{1}{10}$ of a doll.		50 cents = $\frac{1}{2}$ of a doll.	
$12\frac{1}{2}$ cents = $\frac{1}{8}$ of a doll.		$62\frac{1}{2}$ cents = $\frac{5}{8}$ of a doll.	
$16\frac{2}{3}$ cents = $\frac{1}{6}$ of a doll.		75 cents = $\frac{3}{4}$ of a doll.	
20 cents = $\frac{1}{5}$ of a doll.		$87\frac{1}{2}$ cents = $\frac{7}{8}$ of a doll.	

LESSON XII.

ENGLISH MONEY.

The **Denominations** are, the Pound, Shilling, Penny, and Farthing.

4 farthings (qr. or far.)	make	1 penny, marked	d.
12 pence	"	1 shilling, "	s.
20 shillings	"	1 pound, "	£.

5 shillings	make	1 crown, "	c.
20 shillings	"	1 sovereign, "	Sov.
21 shillings	"	1 guinea, "	G.

English or Sterling money is the currency of Great Britain.

VALUE OF SILVER AND GOLD COINS.

		$	cts.
An English shilling is	worth . . .	0	24
" " crown	" . . .	1	20
" " sovereign	" . . .	4	84
" " pound	" . . .	4	84
" " guinea	" . . .	5	00
A franc of France	" . . .	0	19
A five-franc piece	" . . .	0	94

TROY WEIGHT.

The **Denominations** are, the Pound, Ounce, Pennyweight, and Grain.

24 grains (gr.)	make	1 pennyweight, marked	pwt.
20 pennyweights	"	1 ounce, "	oz.
12 ounces	"	1 pound, "	lb.

Troy weight is used in weighing gold, silver, and jewels.

LESSON XIII.

APOTHECARIES' WEIGHT.

The **Denominations** are, the Pound, Ounce, Dram, Scruple, and Grain.

20 grains (gr.)	make	1 scruple,	marked	sc. or	℈.
3 scruples	"	1 dram,	"	dr. or	ʒ.
8 drams	"	1 ounce,	"	oz. or	℥.
12 ounces	"	1 pound,	"	lb. or	℔.

Apothecaries' weight is used in mixing medicines. But medicines are always bought and sold by avoirdupois weight.

AVOIRDUPOIS WEIGHT.

The **Denominations** are, the Ton, Hundred, Quarter, Pound, Ounce, and Dram.

16 drams (dr.)	make	1 ounce,	marked	oz.
16 ounces	"	1 pound,	"	lb.
25 pounds	"	1 quarter,	"	qr.
4 quarters	"	1 hundred pounds	"	cwt.
20 cwt., or 2000 lbs.	"	1 ton	"	T.

Avoirdupois weight is used for all the ordinary purposes of weighing.

NOTE.—The *long* or *gross* ton, in which the *quarter* becomes 28 pounds, the *hundred weight* 112 pounds, and the *ton* 2240 pounds, is now seldom used except in estimating English goods, at the U. S. custom-houses, in freighting and wholesaling coal from the Pennsylvania mines, and in the wholesale iron and plaster trade.

The following denominations are also in use:

56 pounds	make	1 firkin of butter.			
196	"	"	1 barrel of flour.		
200	"	"	1	"	" beef, pork, or fish.
280	"	"	1	"	" salt at N. Y. salt works.
56	"	"	1 bushel of	"	" "
32	"	"	1	"	" oats.
48	"	"	1	"	" barley.
56	"	"	1	"	" corn or rye.
60	"	"	1	"	" wheat.

LESSON XIV.

LIQUID MEASURE

The **Denominations** are, the Hogshead, Barrel, Gallon, Quart, Pint, and Gill.

4	gills (gi.)	make	1 pint,	marked	pt.
2	pints	"	1 quart,	"	qt.
4	quarts	"	1 gallon,	"	gal.
31½	gallons	"	1 barrel,	"	bar.
2	barrels, or 63 gals.	"	1 hogshead,	"	hhd.

Liquid Measure is used in measuring liquids; as, liquors, molasses, water, etc.

NOTE.—The tierce, hogshead, pipe, butt, and tun, are the names of casks, and do not express any fixed or definite measures.

Ale or **Beer Measure**, formerly used in measuring beer, ale, and milk, is not a standard measure, and is almost entirely out of use.

NOTE.—When this Measure is used,

36 gallons		make	1 barrel of beer.
54 "	or 1½ barrels	"	1 hogshead "

DRY MEASURE.

The **Denominations** are, the Chaldron, Bushel, Peck, Quart, and Pint.

2	pints (pt.)	make	1 quart,	marked	qt.
8	quarts	"	1 peck,	"	pk.
4	pecks	"	1 bushel,	"	bu.
36	bushels	"	1 chaldron of coal,	"	chal.

Dry Measure is used to measure all kinds of grain, fruits, roots, coal, salt, seeds, etc.

LONG MEASURE.

The **Denominations** are the Mile, Furlong, Rod, Yard, Foot, and Inch.

12	inches (in.)	make	1 foot,	marked	ft.
3	feet	"	1 yard,	"	yd.
5½	yards, or 16½ ft.	"	1 rod or pole,	"	rd.
40	rods	"	1 furlong,	"	fur.
8	fur. or 320 rods,	"	1 mile,	"	m.

Long Measure is used in measuring lines or distances.

LESSON XV.

NOTE.—Long Measure is used to measure cloth, and other goods sold by the yard, the yard being divided into halves, fourths, eighths, and sixteenths. The old table of *Cloth Measure* is practically out of use.

The following denominations are also in use:

4 inches	make 1	hand.
6 feet	" 1	fathom.
1.15 statute	" 1	geographical mile.
3 geograph. miles,	" 1	league, marked L.
60 geograph. " "	} 1	degree, " deg. or °.
69.16 statute " "		
360 degrees	make a great circle of the earth.	

SQUARE MEASURE.

The **Denominations** are, the Square Mile, Acre, Rood, Square Rod, Square Foot, and Square Inch.

144 sq. in., (sq. in.)	make 1	sq. foot,	mk'd sq. ft.
9 square feet	" 1	sq. yard,	" sq. yd.
30¼ square yards	" 1	sq. rod,	" sq. rd.
40 sq. rods or perches	" 1	rood,	" R.
4 roods	" 1	acre	" A.
640 acres	" 1	sq. mile,	" sq. m.

Square Measure is used in measuring surfaces; as, land, boards, plastering, paving, etc.

SURVEYORS' SQUARE MEASURE.

The **Denominations** are, the Township, Square Mile, Acre, Square Chain, Square Pole, and Square Link.

625 square links, (sq. l.)	make 1	pole,	marked P.
16 poles	" 1	sq. chain,	" sq. ch.
10 square chains	" 1	acre,	" A.
640 acres	" 1	sq. mile,	" sq. mi.
36 sq. miles (6 miles sq.)	" 1	township,	" T.

Surveyors' Measure is used by surveyors, in computing the area or contents of Lands.

NOTE.—A square mile of land is called a *section*.

LESSON XVI.

CUBIC MEASURE.

The **Denominations** are, the Cord, Cord Foot, Perch, Ton, Cubic Yard, Cubic Foot, and Cubic Inch.

1728 cubic in. (cu. in.)	make	1 cu. foot,	mk'd cu. ft.
27 cubic feet	"	1 cu. yard,	" cu. yd.
40 cu. ft. round timber or 50 " " hewn "	}	1 ton or load,	" T.
24¾ cubic feet	make	1 perch of stone,	Pch.
16 cubic feet	"	1 cord foot,	mk'd c. ft.
8 cord feet, or 128 cubic feet	} "	1 cord of wood,	" C.

Cubic Measure is used for measuring solids; as, timber, wood, stone, etc.

NOTE.—A pile of wood 8 ft. long, 4 ft. wide, and 4 ft. high, contains 1 cord.

MEASURE OF TIME.

The **Denominations** are, the Century, Year, Month, Week, Day, Hour, Minute, and Second.

60 seconds (sec.)	make	1 minute,	marked m.
60 minutes	"	1 hour,	" h.
24 hours	"	1 day,	" da.
7 days	"	1 week,	" w.
4 weeks	"	1 lunar month,	" mo.
52 weeks	"	1 year,	" yr.
12 calendar mo. or 365 da.		1 year,	" yr.
100 years	make	1 century,	" C.

Time is the measure of duration, and is used to measure the exact periods in which events occur.

The following table gives the names of the 12 calendar months, in their order, and the number of days in each.

1. January	has 31 days.	7. July	has 31 days.
2. February	" 28 days.	8. August	" 31 days.
3. March	" 31 days.	9. September	" 30 days.
4. April	" 30 days	10. October	" 31 days.
5. May	" 31 days.	11. November	" 30 days.
6. June	" 30 days.	12. December	" 31 days.

LESSON XVII.

CIRCULAR MEASURE.

The **Denominations** are the Circle, Sign, Degree, Minute, and Second.

60 seconds (″)	make	1 minute,	marked ′.
60 minutes	"	1 degree,	" °.
30 degrees	"	1 sign,	" S.
12 signs, or 360 deg.	"	the circle of the Zodiac,	C.

Circular Measure is applied to the measurement of circles and angles, and is used by surveyors, navigators, astronomers, etc., in making their calculations.

MISCELLANEOUS TABLES.

COUNTING.

The **Denominations** are, the Hundred, Score, Great Gross, Gross, Dozen, and Unit.

12 units or single things	make	1 dozen.
12 dozen, or 144 units	"	1 gross.
12 gross, or 144 dozen	"	1 great gross.
20 units or single things	"	1 score.
5 score	"	1 hundred.

PAPER.

The **Denominations** are, the Bale, Bundle, Ream, Quire, and Sheet.

24 sheets of paper	make	1 quire.
20 quires of paper	"	1 ream.
2 reams	"	1 bundle.
5 bundles	"	1 bale

BOOKS.

The **Denominations** are, Folio, Quarto, Octavo, Duodecimo, etc.

A sheet folded in	2 leaves	is called	a Folio.
A sheet folded in	4 leaves	"	a Quarto, or 4to.
A sheet folded in	8 leaves	"	an Octavo, or 8vo.
A sheet folded in	12 leaves	"	a Duodecimo, or 12mo.

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